

Cold Injuries Training



3D Marines

Who Can be effected by Cold Injuries?

Cold injuries are most likely to occur when an unprepared individual is exposed to winter temperatures. They can occur even with proper planning and equipment. The cold weather and the type of combat operation in which the individual is involved impact on whether he is likely to be injured and to what extent. His clothing, his physical condition, and his mental makeup also are determining factors. However cold injuries can usually be prevented. Well-disciplined and well-trained Marines can be protected even in the most adverse circumstances. They and their leaders must know the hazards of exposure to the cold. They must know the importance of personal hygiene, exercise,



Contributing Factors

- *Weather.*
 - Temperature, humidity, precipitation and wind modify the loss of body heat.
 - Low temperatures and low relative humidity--dry cold--promote frostbite.
 - Higher temperatures, together with moisture, promote immersion syndrome.
 - Wind chill accelerates the loss of body heat and may aggravate cold injuries.
 - These principles and risks apply equally to both men and women.



Contributing Factors(cont.)

2. *Type of combat operation.* Certain factors further increase the Marine's vulnerability to cold injury. Also, a Marine is more likely to receive a cold injury if he is--

- a. Often in contact with the ground.
- b. Immobile for long periods, such as while riding in a crowded vehicle.
- c. Standing in water, such as in a foxhole.
- d. Out in the cold for days without being warmed.
- e. Deprived of an adequate diet and rest.



Contributing Factors(cont.)

- *Clothing.* The Marine should wear several layers of loose clothing. He should dress as lightly as possible consistent with the weather to reduce the danger of excessive perspiration and subsequent chilling. He should remove a layer or two of clothing before doing any hard work. He should replace the clothing when work is completed. Wet gloves, shoes, socks, or any other wet clothing add to the cold injury process.



Contributing Factors(cont.)

- *Physical makeup.*
 - Physical fatigue contributes to apathy, which leads to inactivity, personal neglect, carelessness, and reduced heat production. In turn, these increase the risk of cold injury.
 - Marines with prior cold injuries have a higher-than-normal risk of subsequent cold injury, not necessarily involving the part previously injured.



Contributing Factors(cont.)

- *Psychological factor.*
 - Mental fatigue and fear reduces the body's ability to re-warm itself and thus increases the incidence of cold injury. The feelings of isolation imposed by the environment are also stressful.
 - Depressed and/or unresponsive Marines are also vulnerable because they are less active. These Marines tend to be careless about precautionary measures, especially warming activities, when cold injury is a threat.



Signs/Symptoms

- Many Marines suffer cold injury without realizing what is happening to them. They may be cold and generally uncomfortable. These Marines *often do not notice* the injured part because it is *already numb* from the cold.
- Superficial cold injury usually can be *detected by numbness*, tingling, or "pins and needles" sensations. These signs/symptoms often can be relieved simply by loosening boots or other clothing and by exercising to improve circulation. In more serious cases involving deep cold injury, the Marine often is not aware that there is a problem *until the affected part feels* like a stump or block of wood.



Signs/Symptoms (cont.)

- Outward signs of cold injury include *discoloration* of the skin at the site of injury. In light-skinned persons, the skin first reddens and then becomes pale or waxy white. In dark-skinned persons, grayness in the skin is usually evident. An injured foot or hand *feels cold* to the touch. *Swelling* may be an indication of deep injury. Also note that blisters may occur after re-warming the affected parts. *Marines* should work in pairs--buddy teams--to *check each other* for signs of discoloration and other symptoms.



Conditions Caused by Cold

- *Chilblain.*
 - *Signs/Symptoms:* caused by repeated prolonged exposure of bare skin at temperatures from 60F to 32F, or 20F for acclimated, dry, unwashed skin. The area may be acutely swollen, red, tender, and hot with itchy skin. There may be no loss of skin tissue in untreated cases but continued exposure may lead to infected, ulcerated, or bleeding lesions.



Conditions Caused by Cold (cont.)

- Chilblain (cont.)

- *Treatment.* Within minutes, the area usually responds to locally applied body heat. Re-warm the affected part by applying firm steady pressure with your hands, or placing the affected part under your arms or against the stomach of a buddy. DO NOT rub or massage affected areas. Medical personnel should evaluate the injury, because signs and symptoms of tissue damage may be slow to appear.
- *Prevention.* Prevention of chilblain depends on basic cold injury prevention methods. Caring for and wearing the uniform properly and staying dry (as far as conditions permit) are of immediate importance



Conditions Caused by Cold (cont.)

- *Immersion foot/Trench foot*
 - Immersion foot and trench foot are injuries that result from fairly long exposure of the feet to wet conditions at low temperature.
 - Inactive feet in damp or wet socks and boots or tightly laced boots which impair circulation are even more susceptible to injury.
 - This injury can be very serious; it can lead to loss of toes or parts of the feet.



Conditions Caused by Cold (cont.)

- *Immersion foot/Trench foot(cont.)*
 - Signs/Symptoms. At first, the parts of the affected foot are cold and painless, numbness may be present.
 - Second, the parts may feel hot, and burning and shooting pains may begin.
 - In later stages, the skin is pale with a bluish cast and the pulse decreases. Other signs/symptoms that may follow are blistering swelling, redness, heat, hemorrhages (bleeding), and gangrene.



Conditions Caused by Cold (cont.)

- *Immersion foot/Trench foot(cont.)*

Treatment:

- Re-warm the injured part gradually by exposing it to warm air.
- DO NOT massage it.
- DO NOT moisten the skin
- DO NOT apply heat or ice.
- Protect it from trauma and secondary infections.
- Under no circumstances should the injured part be exposed to an open fire.
- Elevate the injured part to relieve the swelling.



Conditions Caused by Cold (cont.)

- *Immersion foot/Trench foot(cont.)*

Prevention:

- Immersion syndrome can be prevented by good hygienic care of the feet and avoiding moist conditions for prolonged periods.
- Changing socks at least daily (depending on environmental conditions) is also a preventive measure. Wet socks can be air dried, then can be placed inside the shirt to warm them prior to putting them on.



Conditions Caused by Cold (cont.)

- *Frostbite*
 - The injury of tissue caused from exposure to cold, depending on the windchill factor, duration of exposure, and adequacy of protection.
 - Marines with a history of cold injury are likely to be more easily affected.
 - The body parts most easily frostbitten are the cheeks, nose, ears, chin, forehead, wrists, hands, and feet. Frostbite may involve only the skin (superficial), or it may extend to a depth below the skin (deep). Deep frostbite is very serious and requires more aggressive first aid to avoid or to minimize the loss of parts of the fingers, toes, hands, or feet.



Conditions Caused by Cold (cont.)

- *Frostbite (cont.)*

- *Progressive signs/symptoms*

- *Loss of sensation, or numb feeling in any part of the body.*
 - *Sudden blanching (whitening) of the skin of the affected part, followed by a momentary "tingling" sensation.*
 - *Redness of skin in light-skinned Marines grayish coloring in dark-skinned individuals.*
 - *Blister.*
 - *Swelling or tender areas.*
 - *Loss of previous sensation of pain in affected area.*
 - *Pale, yellowish, waxy-looking skin.*
 - *Frozen tissue that feels solid (or wooden) to the touch.*



Conditions Caused by Cold (cont.)

- *Frostbite Treatment*

- *Face, ears, and nose.* Cover the casualty affected area with his and/or your bare hands until sensation and color return.
- *Hands.* Open the casualty's field jacket and shirt. (In a chemical environment never remove the clothing.) Place the affected hands under the casualty's armpits. Close the field jacket and shirt to prevent additional exposure.
- *Feet.* Remove the casualty's boots and socks if he does not need to walk any further to receive additional treatment. (Thawing the casualty's feet and forcing him to walk on them will cause additional pain/ injury.) Place the affected feet under clothing and against the body of another Marine.



Conditions Caused by Cold (cont.)

- *Frostbite (cont.)*
 - WARNING: DO NOT attempt to thaw the casualty's feet or other seriously frozen areas if he will be required to walk or travel to receive further treatment. There is less danger in walking while the feet are frozen than after they have been thawed. Thawing in the field increases the possibilities of infection, gangrene, or other injury.



Conditions Caused by Cold (cont.)

- *Frostbite Prevention.*
 - **Dress to protect yourself**
 - **Keep your clothing and body dry**
 - **Exercise exposed body parts frequently**
 - **Exercise your fingers and toes from time to time with your hands**
 - **Use the buddy system**
 - **Wear properly fitted clothing and equipment**



Conditions Caused by Cold (cont.)

- *Snow blindness*

- The effect that glare from an ice field or snowfield has on the eyes. It is more likely to occur in hazy, cloudy weather than when the sun is shining. Glare from the sun will cause an individual to instinctively protect his eyes. However, in cloudy weather, he may be overconfident and expose his eyes longer than when the threat is more obvious. He may also neglect precautions such as the use of protective eyewear.
- Waiting until discomfort (pain) is felt before using protective eyewear is dangerous because a deep burn of the eyes may already have occurred.



Conditions Caused by Cold (cont.)

- *Snow blindness*
 - *Signs/Symptoms.*
 - *A sensation of grit in the eyes with pain in and over the eyes, made worse by eyeball movement.*
 - *Watering*
 - *Redness*
 - *Headache*
 - *Increased pain on exposure to light*
 - *The same condition that causes snow blindness can cause snowburn of skin, lips, and eyelids. If a snowburn is neglected, the result is the same as a sunburn.*



Conditions Caused by Cold (cont.)

- *Snow Blindness Treatment*
 - *Blindfold or cover the eyes with a dark cloth which stops painful eye movement*
 - *Complete rest is desirable*
 - *The casualty should be evacuated to the nearest medical facility*



Conditions Caused by Cold (cont.)

- *Snow Blindness Prevention.*
 - Wear protective eye wear
 - When protective eye wear is not available, an emergency pair can be made from a piece of wood or cardboard cut and shaped to the width of the face. Cut slits for the eyes and attach strings to hold the improvised glasses in place. Slits are made at the point of vision to allow just enough space to see and reduce the risk of injury
 - Blackening the eyelids and face around the eyes absorbs some of the harmful rays



Conditions Caused by Cold (cont.)

- *Dehydration*

- *Signs/Symptoms*

- *Mouth, tongue, and throat parched and dry*
 - *Swallowing is difficult*
 - *Nausea with or without vomiting*
 - *Dizziness/Fainting*
 - *Feel generally tired and weak*
 - *May experience muscle cramps (especially in the legs).*
 - *Focusing eyes may also become difficult.*



Conditions Caused by Cold (cont.)

- *Dehydration Treatment.*
 - *Keep warm*
 - *Clothes should be loosened*
 - *Shelter from wind and cold will aid in this treatment.*
 - *Fluid replacement*
 - *Rest*
 - *Prompt medical treatment is critical*



Conditions Caused by Cold (cont.)

- *Dehydration Prevention.*
 - *Sufficient additional liquids should be consumed to offset excessive body losses of these elements.*
 - *Amount should vary according to the individual and the type of work he is doing*
 - *Rest is equally important as a preventive measure.*



Conditions Caused by Cold (cont.)

- *Hypothermia*

- The body loses heat faster than it can produce it. Hypothermia may occur from exposure to temperatures above freezing, especially from immersion in cold water, wet-cold conditions, or from the effect of wind.
- General cooling of the entire body to a temperature below 95F is caused by continued exposure to low or rapidly dropping temperatures, cold moisture, snow or ice.
- Remember, cold affects the body systems slowly and almost without notice. Marines exposed to low temperatures for extended periods may suffer ill effects even if they are well protected by clothing.



Conditions Caused by Cold (cont.)

- *Hypothermia(cont.)*
 - *Signs/Symptoms*
 - *Shivering*
 - *Pulse is faint or very difficult to detect*
 - *Drowsy and mentally slow*
 - *Ability to move may be hampered, stiff, and uncoordinated, but they may be able to function minimally*
 - *Speech may be slurred*
 - *Shock*
 - *Breathing becomes slow and shallow*



Conditions Caused by Cold (cont.)

- *Hypothermia Treatment*

- *Re-warming the body evenly and without delay*
- *Provide heat by using a hot water bottle, electric blanket, campfire, or another Marine's body heat*
- *Always call or send for help as soon as possible and protect the casualty immediately with dry clothing or a sleeping bag.*
- *Then, move him to a warm place.*
- *Warm liquids may be given gradually but must not be forced on an unconscious or semiconscious person because he may choke*
- *Transported on a litter because the exertion of walking may aggravate circulation problems*



Are there any questions?



3D Marines